Claims:

1. A curable composition comprising deagglomerated barium sulfate containing at least one dispersant, including nanoparticles containing at least one crystallization inhibitor and having a primary particle size < 0.5 µm, preferably < 0.1 µm, in particular < 30 nm.

2. The curable composition as claimed in claim 1, characterized in that the crystallization inhibitor is selected from the group consisting of compounds of the general formula V or salts thereof

$$R^2\text{-}[\text{-}A(O)OH]_p \qquad (V)$$

in which the index and the variables have the following meanings:

R^2 is an organic radical containing hydrophobic and/or hydrophilic substructures;

A is C, P(OH), O-P(OH), S(O) or O-S(O); and

p is from 1 to 10 000, preferably from 1 to 5.

3. The curable composition as claimed in claim 2, characterized in that the organic radical R^2 is a low molecular mass, oligomeric or polymeric, optionally branched and/or cyclic carbon chain optionally containing oxygen, phosphorus, nitrogen or sulfur heteroatoms, and/or is substituted by radicals attached via oxygen, nitrogen, phosphorus or sulfur to the radical R^2.

4. The curable composition as claimed in any one of claims 1 to 3, characterized in that the crystallization inhibitor is a carboxylic

acid having at least two carboxylate groups and at least one hydroxyl group, an alkyl sulfate, an alkylbenzenesulfonate, a polyacrylic acid or an optionally hydroxy-substituted diphosphonic acid.

5. The curable composition as claimed in any one of claims 1 to 4, characterized in that the dispersant imparts to the barium sulfate particles a surface which inhibits agglomeration and/or prevents reagglomeration electrostatically, sterically or both electrostatically and sterically.

6. The curable composition as claimed in claim 5, characterized in that the dispersant is a phosphoric diester including as substructures a polyether group and a C_6-C_{10} alkenyl group.

7. The curable composition as claimed in claim 5 or 6, characterized in that the dispersant contains reactive groups for covalent attachment.

8. The curable compositon as claimed in claim 7, characterized in that the reactive groups are hydroxyl groups and/or amino groups.

9. The curable composition as claimed in claim 5, characterized in that the dispersant is a polyetherpolycarboxylate substituted terminally on the polyether groups by hydroxyl groups.

10. The curable composition as claimed in any one of claims 1 to 9, characterized in that the deagglomerated barium sulfate is used in the form of a suspension in water, in an organic liquid, in a mixture of water and organic liquid, or as a suspension in a polymeric premix.

11. The curable composition as claimed in any one of claims 1 to 9, characterized in that the deagglomerated barium sulfate is used as a dry, redispersible powder obtainable by drying the deagglomerated barium sulfate.

12. A polymeric premix for curable compositions, comprising deagglomerated barium sulfate as set forth in any one of claims 1 to 11.

13. The curable composition as claimed in claim 10, characterized in that the deagglomerated barium sulfate used in the preparation of the curable composition is in suspension in an aqueous phase.

14. The curable composition as claimed in claim 13, characterized in that the suspension of the deagglomerated barium sulfate has a solids content of from 0.1 to 30% by weight.

15. The curable composition as claimed in claim 13 or 14, characterized in that the suspension has a pH > 7.

16. The curable composition as claimed in any one of claims 1 to 15, characterized in that the deagglomerated barium sulfate is a catalyst for curing the curable composition.

17. The curable composition as claimed in any one of claims 1 to 15, characterized in that it further comprises binders which contain at least one epoxide group (a1).

18. The curable composition as claimed in claim 17, characterized in that the binders are oligomers and/or polymers (A).

19. The curable composition as claimed in claim 17 or 18, characterized in that the oligomers and/or polymers (A) are hydrolysates and/or condensates preparable by hydrolyzing and/or

condensing at least one oligomer and/or polymer (A) containing at least one epoxide group (a1) and at least one hydrolyzable silane group (a2).

20. The curable composition as claimed in claim 19, characterized in that the oligomers and polymers (A) containing at least one epoxide group (a1) and at least one hydrolyzable silane group (a2) are selected from the group of the addition copolymers of olefinically unsaturated monomers.

21. The curable composition as claimed in claim 20, characterized in that the oligomers and polymers (A) containing at least one epoxide group (a1) and at least one hydrolyzable silane group (a2) are addition (meth)acrylate copolymers.

22. The curable composition as claimed in any one of claims 19 to 21, characterized in that the molar ratio of epoxide groups (a1) to hydrolyzable silane groups (a2) in an oligomer or polymer (A) is from 1.5:1 to 1:1.5.

23. The curable composition as claimed in any one of claims 19 to 22, characterized in that the oligomer and the polymer (A) are preparable by copolymerizing at least one monomer (a1) containing at least one epoxide group (a1) with at least one monomer (a2) containing at least one hydrolyzable silane group (a2).

24. The curable composition as claimed in claim 23, characterized in that the monomers (a1) and (a2) are copolymerizable with at least one further monomer (a3) different from (a1) and (a2).

25. The curable composition as claimed in claim 23 or 24, characterized in that the monomers (a1), (a2) and (a3) contain at least one olefinically unsaturated group.

26. The curable composition as claimed in claim 25, characterized in that the olefinically unsaturated groups are methacrylate and/or acrylate groups.

27. The curable composition as claimed in any one of claims 23 to 26, characterized in that the molar ratio of monomer (a1) to monomer (a2) is from 1.5:1 to 1:1.5.

28. The curable composition as claimed in any one of claims 19 to 27, characterized in that the oligomers and polymers (A) containing at least one epoxide group (a1) and at least one hydrolyzable silane group (a2) are hydrolyzable and/or condensable at a pH < 7.

29. The curable composition as claimed in claim 28, characterized in that the hydrolysis and/or condensation can be conducted in the presence of an organic acid.

30. The curable composition as claimed in any one of claims 19 to 29, characterized in that the hydrolysis and/or condensation can be conducted at from –10 to +80°C.

31. The curable composition as claimed in any one of claims 1 to 30, characterized in that the deagglomerated barium sulfate is additionally modified with at least one modifier.

32. The curable composition as claimed in claim 31, characterized in that the modifier is acetic acid and/or propionic acid.

33. The use of a curable composition as claimed in any one of claims 1 to 32 as a coating material, adhesive, sealant or starting material for moldings and self-supporting sheets.

34. The use of a curable composition as claimed in any one of claims 1 to 32 for shielding substrates from high-energy radiation.